

Claims

1. A coding system having a luminescent basic substance and at least one luminescent additive, the possible codings of the coding system being formed by the presence or absence of a luminescent additive and/or the type of additives and/or the number of additives.
2. The coding system according to claim 1, characterized in that the luminescent basic substance and the luminescent additives each have coding-relevant emission lines located in a joint emission range.
3. The coding system according to claim 2, characterized in that all coding-relevant emission lines are outside the visible spectral range.
4. The coding system according to claim 2 or 3, characterized in that all coding-relevant emission lines are in the spectral range from 750 nm to about 2500 nm, preferably in the spectral range from about 800 nm to about 2200 nm, particularly preferably in the spectral range from about 1000 nm to about 1700 nm.
5. The coding system according to at least one of claims 2 to 4, characterized in that at least two luminescent additives are provided whose coding-relevant emission lines do not overlap with the coding-relevant emission lines of the basic substance in the joint emission range.
6. The coding system according to at least one of claims 1 to 5, characterized in that the luminescent basic substance and/or at least one of the luminescent additives is formed on the basis of a doped host lattice.
7. The coding system according to at least one of claims 1 to 6, characterized in that the luminescent basic substance and/or at least one of the luminescent additives is formed on the basis of a host lattice doped with rare earth elements, preferably the host lattice is doped with neodymium, erbium, holmium, thulium, ytterbium, praseodymium, dysprosium or a combination of said elements.

8. The coding system according to at least one of claims 1 to 7, characterized in that the luminescent basic substance and/or at least one of the luminescent additives is formed on the basis of a host lattice doped with a chromophore, the chromophore being selected from the group of scandium, titanium, vanadium, chromium, manganese, iron, cobalt, nickel, copper and zinc.
9. The coding system according to claim 8, characterized in that at least one of the host lattices is doped with a plurality of chromophores.
10. The coding system according to at least one of claims 6 to 9, characterized in that at least one of the host lattices is formed by a mixed crystal.
11. The coding system according to at least one of claims 1 to 10 and according to claim 2, characterized in that first and second luminescent additives are provided which form a pair of mutually associated luminescent substances, the emission spectra of the first and second additives overlapping in at least a subrange of the joint emission range such that the emission spectrum of the first additive is complemented by the emission spectrum of the second additive.
12. The coding system according to claim 11, characterized in that the first and second additives are formed by a doped host lattice according to any of claims 6 to 9.
13. The coding system according to claim 11 or 12, characterized in that the first and the second additives are formed on the basis of different host lattices which have crystal fields of different strength and which are each doped with the same dopant.
14. The coding system according to at least one of claims 11 to 13, characterized in that the stated subrange where the emission spectra of the first and second additives complementarily overlap has a width of 200 nm or less, preferably 100 nm or less.
15. The coding system according to at least one of claims 11 to 14, characterized in that the stated subrange where the emission spectra of the first and second addi-

tives complementarily overlap extends from about 850 nm to about 970 nm, or from about 920 nm to about 1060 nm, or from about 1040 nm to about 1140 nm, or from about 1100 nm to about 1400 nm, preferably from about 1100 nm to about 1250 nm, particularly preferably from about 1120 nm to about 1220 nm, or from about 1300 nm to about 1500 nm, or from about 1400 nm to about 1700.

16. The coding system according to at least one of claims 11 to 15, characterized in that the first and second additives have in the stated subrange at least one emission line in each case whose positions have a distance apart of about 30 nm or less, preferably about 20 nm or less, particularly preferably about 10 nm or less.
17. The coding system according to at least one of claims 11 to 16, characterized in that the coding system has a plurality of pairs of mutually associated additives as stated in claims 11 to 16.
18. The coding system according to claim 17, characterized in that the subranges where the emission spectra of the first and second additives of a pair overlap each other complementarily are different for different pairs of mutually associated additives.
19. The coding system according to at least one of claims 1 to 18, characterized in that the coding-relevant emission line of the luminescent basic substance is in the infrared spectral range above 1100 nm.
20. The coding system according to at least one of claims 1 to 19, characterized in that a plurality of luminescent basic substances are provided.
21. Use of a coding system according to at least one of claims 1 to 20 for securing value documents.